Opportunity Title: Material Science of High-Temperature Materials
Opportunity Reference Code: AFSTFP-AFRL-2018-B0204

Organization U.S. Air Force

Reference Code AFSTFP-AFRL-2018-B0204

How to Apply A complete application package consists of:

- An application
- A current resume/CV
- Transcript(s) – For this opportunity, an unofficial transcript or copy of academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. **Official Transcripts for Junior applicants must be sent to ORAU directly from the academic institution, including graduation date and degree awarded, and must be provided before the fellowship can begin.** All transcripts must be in English or include an official English translation.
- Three references

Additional documents to be uploaded must be in PDF format in a standard typeface no smaller than 12-point font, 1" margins, and double-spaced.

- Research Proposal (maximum of 10 pages)
- Dissertation Abstract (maximum of 1 page) *not required for Senior applicants*
- Summary of Previous and Current Research (maximum of 4 pages)
- List of Publications (maximum of 2 pages)

If you have questions, send an email to AirForceFellowships@orau.org. Please include the reference code for this opportunity in your email.

Description Although carbon-carbon composites are excellent high-temperature structural materials and are employed extensively in many operating systems, such as aircraft brakes, high-temperature bearings and clutches, nozzles, exit cones, leading edges, satellite structures and thermal spreaders, research is needed to extend their use into different applications and environments, as well as to greatly reduce their cost. Our composites research focuses on low-cost rapid densification techniques for carbon fiber preforms, the use of nanophase materials in novel oxidation protection systems, as well as methods to enhance the interlaminar properties of these composites. Research is also being performed in the areas of nano-reinforcement of carbon fibers, control of wettability utilizing surface geometry, supercritical fluid deposition of refractory materials, and microtube technology. These microtubes can be made in various cross-sectional and axial shapes from practically any material. To date, microtubes with an ID as small at 0.1 microns have been fabricated, although the lower limit is thought to be 5 nm. Microtubes may be made free-

Opportunity Title: Material Science of High-Temperature Materials
Opportunity Reference Code: AFSTFP-AFRL-2018-B0204

standing or may form tubes or channels in monolithic bodies.

Qualifications

Candidates must have a Ph.D., Sc.D., M.D., D.V.M., or academically equivalent research doctorate before beginning the fellowship.

Candidates must have U.S. citizenship. Research opportunities at AFRL, AFIT, and USAFA are open to U.S. citizens only. Qualified applicants will receive consideration without regard to race, creed, color, age, sex, or national origin.

Stipend rates are determined by Air Force officials, and are based on the applicant's academic and professional background. The fellow must show proof of health and medical insurance. Health insurance can be obtained through ORAU. The fellow will not enter into an employee/employer relationship with ORAU, USAF, or any other facility, office or agency. Instead, the participant will be affiliated with ORAU for the administration of the appointment through the ORAU appointment letter and Terms of Appointment.

For more information, please visit the Air Force STFP website at https://AirForceFellowships.orau.org.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Academic Level(s):** Postdoctoral.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (12 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (18 👁)